### ****The Beats Beyond****

**Project Technical Documentation**

#### **Overview**

The Beats Beyond is a groundbreaking and multifaceted platform designed to empower storytellers, musicians, and artists by providing a collaborative and dynamic environment where creativity knows no bounds. The platform seamlessly integrates creative writing, music composition, visual arts, and community-driven initiatives, making it an ideal space for creators across disciplines to share their work and inspire others.

The Beats Beyond allows users to share personal stories or create fictional works, providing inspiration to others and sparking new artistic expressions. Users can also participate in writing eBook chapters, composing song lyrics, and submitting their works to inspire the broader community. Moreover, the platform introduces a new feature enabling artists to organize online exhibitions—showcasing their visual art, sculptures, photography, and other forms of artistic expression. These exhibitions offer a virtual venue for creators to present their works, engage with their audience, and expand their reach globally.

By combining competitions, media events, and collaborative projects, The Beats Beyond accelerates the growth of emerging artists and provides a robust ecosystem for creative development. The platform also offers tools and opportunities for discovering new talent across music, writing, and visual arts.

#### **Key Features**

* **Story Sharing**: Users can submit personal stories or fictional works, which inspire others and serve as the foundation for new music, art, and creative content.
* **eBook Chapters & Song Lyrics**: Writers and musicians can share eBook chapters and song lyrics, enabling collaborative efforts across disciplines and fostering innovation.
* **Competitions**: Regular competitions in writing, music, lyrics, and art encourage participants to demonstrate their talents and gain recognition within a supportive community.
* **Online Exhibitions**: Artists can organize and participate in virtual exhibitions to showcase their visual art, photography, sculptures, and other creative works, creating a global platform for their art.
* **Voting**: Users can vote for stories, exhibitions, songs, and lyrics, helping to highlight the best and most impactful works on the platform.
* **Media Exposure**: The platform organizes media events and showcases to amplify the work of emerging talent and create opportunities for career advancement.

#### **Mission**

At The Beats Beyond, our mission is to provide a transformative, all-encompassing platform that empowers storytellers, musicians, and artists to share their creative works, collaborate with others, and gain exposure in an inclusive and dynamic environment. We are committed to helping artists across various disciplines find their voice and expand their reach—whether through personal storytelling, eBook creation, songwriting, or visual arts.

In addition to these foundational elements, we are introducing the ability for visual artists to organize and host online exhibitions, enabling them to present their visual art to a global audience and receive feedback and recognition from their peers. Our platform bridges the gap between all art forms, and with this new feature, we aim to create an immersive, interconnected ecosystem that drives collaboration across music, storytelling, and the visual arts.

Through ongoing competitions, mentorship, voting systems, and media events, The Beats Beyond serves as a catalyst for artistic development and career progression, offering emerging talent the opportunities and resources needed to accelerate their creative journey and make a lasting impact on the world.

#### **Vision**

The Beats Beyond envisions a world where creativity is boundless, where every artist—regardless of medium—has the opportunity to share their work and connect with an audience that truly appreciates their talent. By fostering an inclusive community of creators from diverse artistic fields, our vision is to build a platform that celebrates all forms of artistic expression—whether it's a personal story, an eBook chapter, a song lyric, or a painting.

A key element of this vision is the integration of visual art into the platform through the ability to organize online exhibitions. These exhibitions will allow visual artists to connect with audiences, showcase their work, and collaborate with musicians, writers, and other artists in new and meaningful ways. By providing an interdisciplinary space for creative exchange, The Beats Beyond is positioned to redefine how artists from different fields come together, learn from one another, and create cross-medium works of art.

We aspire to be the leading global platform for emerging talent, where stories, songs, and artworks not only inspire but also transform the creative landscape. With our unwavering commitment to fostering collaboration and inclusivity, The Beats Beyond will be the place where the art of tomorrow is discovered, celebrated, and nurtured.

#### **Introduction**

The Beats Beyond is a versatile and innovative digital platform that reimagines how creativity, collaboration, and artistic expression intersect. Designed to accommodate a wide range of creators, the platform allows users to share their personal stories, write eBook chapters, compose lyrics, and even organize online exhibitions to showcase visual art, sculptures, and other creative works.

By offering tools for both storytellers and visual artists, the platform fosters cross-disciplinary collaboration, bringing together musicians, writers, and visual artists to inspire and support one another. The introduction of online exhibitions empowers visual artists to curate and present their art in a virtual, interactive setting, reaching a global audience while engaging with fans and fellow creators.

The Beats Beyond encourages artistic exploration by providing ample opportunities for feedback, exposure, and career growth. Through regular competitions, media events, and collaboration projects, the platform helps emerging artists build their portfolios, expand their networks, and gain recognition within their respective creative fields. The comprehensive approach to creative expression ensures that The Beats Beyond is more than just a platform—it is a movement driving the future of collaborative art.

Whether you are a writer seeking inspiration, a musician looking to collaborate, or a visual artist organizing an online exhibition of your work, The Beats Beyond offers the tools, community, and opportunities to elevate your creative journey. Through this platform, we are shaping the future of artistic collaboration—where stories, songs, and visual works can all coexist and inspire across boundaries.

*Technologies Used*

Frontend:

* Frameworks/Libraries: Next.js, Redux, Axios
* Styling: SASS
* Version Control: Git, GitHub

Backend:

* Programming Language: Node.js
* Framework: Express.js
* Database: MongoDB (NoSQL)
* Authentication: JWT (JSON Web Token)
* APIs: RESTful APIs
* File Storage: Amazon S3 (for storing uploaded songs and images)

DevOps/Deployment:

* Containerization: Docker
* CI/CD: GitHub Actions
* Cloud Hosting: AWS Elastic Beanstalk

Testing:

* Unit Testing: Jest
* Integration Testing: Mocha, Chai

### ****Database Design****

The database design for **The Beats Beyond** is structured to support the core functionalities of the platform, ensuring efficient storage and management of user data, creative content, and exhibitions. The database leverages **MongoDB**, a NoSQL database that allows for flexible, dynamic schema design, making it ideal for handling unstructured and evolving data typical of a creative platform.

#### **Core Collections**

1. **Users**  
   Stores information about registered users, including authentication details and user profile data. The schema includes user-specific fields such as name, email, password hash (JWT token), user role (writer, artist, etc.), and preferences.  
   **Operations**:
   * **Create**: New users can register by providing personal details and authentication credentials.
   * **Read**: User profiles and authentication data can be retrieved for login and session management.
   * **Update**: Users can update their profile information, password, and other preferences.
   * **Delete**: Users can delete their account and associated data.
2. **Stories**  
   Contains both personal and fictional stories submitted by users. This collection stores the title, content, author details, and metadata such as creation date, category, and associated tags.  
   **Operations**:
   * **Create**: Users can submit their stories, which are stored in the collection along with metadata.
   * **Read**: Stories can be fetched based on various criteria such as category, tags, or user profile.
   * **Update**: Authors can edit their stories to make revisions or add new content.
   * **Delete**: Authors or admins can delete stories from the platform.
3. **Songs**  
   Manages song lyrics submitted by users, including the title, lyrics, artist details, and genre. This collection also stores additional metadata like creation date, song status (draft, published), and related tags for categorization.  
   **Operations**:
   * **Create**: Users can upload new song lyrics, which are stored in the database along with metadata.
   * **Read**: Song lyrics can be fetched for display, search, or participation in competitions.
   * **Update**: Song lyrics can be edited for revisions or updates by the artist.
   * **Delete**: Artists or admins can delete song lyrics from the platform.
4. **Exhibitions**  
   Stores data related to online exhibitions hosted by users, including exhibition details (title, description, artist name), artwork information (images, sculptures, etc.), and event metadata such as exhibition date and virtual gallery links.  
   **Operations**:
   * **Create**: Users can organize and submit their exhibitions, including artwork uploads and event details.
   * **Read**: Exhibitions can be retrieved by date, artist, or genre, showcasing user art on the platform.
   * **Update**: Users can modify exhibition details, add new artworks, or change the event status.
   * **Delete**: Exhibitions can be deleted by the organizer or platform admins.

#### **Relationships Between Collections**

1. **User-Story Relationship**  
   A user can have multiple stories, and each story is linked to a specific user through the user ID. This relationship ensures that the platform can fetch all stories created by a particular user.
2. **User-Song Relationship**  
   Similar to stories, each song is associated with a user, typically an artist or lyricist. Songs are stored with a reference to the creator’s ID, allowing for easy identification and retrieval of songs by the artist.
3. **Exhibition-Artist Relationship**  
   Each exhibition is associated with an artist (user) who organizes it. The exhibition schema includes a reference to the user’s ID, ensuring that the platform can display the artwork in the correct user profile.
4. **Story & Song Relationships**  
   Stories and songs are independent entities, but they can be linked if a user wants to submit a story as the inspiration for a song or vice versa. These cross-discipline relationships can be managed through tags or direct linking within the submission process.

#### **Controller Operations**

The backend provides four primary controllers to manage the content and user interactions:

1. **Auth Controller**  
   Manages user authentication and authorization, handling the creation of new users, login/logout, and session management.
   * **Actions**: Register, Login, Logout, Token Validation.
2. **Stories Controller**  
   Handles CRUD operations for user-submitted stories.
   * **Actions**: Create Story, Read Stories (by user or category), Update Story, Delete Story.
3. **Songs Controller**  
   Manages song lyrics submission and modifications.
   * **Actions**: Create Song, Read Songs (by user or genre), Update Song, Delete Song.
4. **Exhibitions Controller**  
   Manages online exhibitions, including creation, updates, and deletion of exhibition details.
   * **Actions**: Create Exhibition, Read Exhibitions (by artist or event date), Update Exhibition, Delete Exhibition.

**7. API Documentation**

The application exposes several API endpoints for interacting with the system. These endpoints follow RESTful principles.

**Authentication:**

* POST /api/auth/login: User login with credentials, returns JWT token.
* POST /api/auth/register: User registration.

**User Endpoints:**

* GET /api/users/{id}: Fetch user profile by user ID.
* PUT /api/users/{id}: Update user profile.

**Post Endpoints:**

* GET /api/posts: Retrieve all posts.
* POST /api/posts: Create a new post.
* GET /api/posts/{id}: Get details of a single post.
* DELETE /api/posts/{id}: Delete a post.

**Comment Endpoints:**

* GET /api/posts/{postId}/comments: Retrieve comments for a post.
* POST /api/posts/{postId}/comments: Add a new comment to a post.

**8. Security**

The application follows several security practices to ensure data privacy and integrity:

* **Authentication & Authorization:** JSON Web Tokens (JWT) are used for user authentication. Only authorized users can access certain endpoints based on their role.
* **Password Security:** Passwords are hashed using bcrypt before being stored in the database.
* **Input Validation & Sanitization:** All inputs are validated and sanitized to prevent XSS, SQL Injection, and other malicious attacks.
* **HTTPS:** The app runs over HTTPS to ensure data encryption in transit.

**9. Deployment**

The web application is deployed using AWS services. The deployment pipeline follows the principles of Continuous Integration and Continuous Deployment (CI/CD).

**Steps for Deployment:**

1. **Dockerize the Application:** The application is containerized using Docker to create consistent environments.
2. **AWS Elastic Beanstalk:** The application is deployed to AWS Elastic Beanstalk, where the Docker containers are hosted and managed.
3. **CI/CD Pipeline:** GitHub Actions is used to automatically build and deploy the application whenever code changes are pushed to the repository.

**10. Environment Setup**

**Local Development Setup:**

1. Clone the repository:

bash

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git clone https://github.com/your-username/your-project.git

1. Navigate to the project directory:

bash

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cd your-project

1. Install dependencies:
   * Frontend: npm install (in the frontend folder)
   * Backend: npm install (in the backend folder)
2. Run the development server:
   * Frontend: npm start (in the frontend folder)
   * Backend: npm start (in the backend folder)

**Environment Variables:**

* MONGODB\_URI: MongoDB connection string.
* JWT\_SECRET: Secret key used for JWT token signing.
* PORT: Port number for the server.

**11. Error Handling & Logging**

The application uses **Winston** for logging. It logs important events and errors to a file for future reference and debugging.

**Common Error Responses:**

* 400 Bad Request: Invalid input or missing parameters.
* 401 Unauthorized: Invalid token or unauthorized access.
* 404 Not Found: Resource not found (e.g., post or user not found).
* 500 Internal Server Error: An unexpected server-side issue.